# Complete Summary

## GUIDELINE TITLE

Clinical practice guidelines for support of the family in the patient-centered intensive care unit: American College of Critical Care Medicine Task Force 2004–2005.

## BIBLIOGRAPHIC SOURCE(S)

Davidson JE, Powers K, Hedayat KM, Tieszen M, Kon AA, Shepard E, Spuhler V, Todres ID, Levy M, Barr J, Ghandi R, Hirsch G, Armstrong D, American College of Critical Care Medicine Task Force 2004-2005, Society. Clinical practice guidelines for support of the family in the patient-centered intensive care unit: American College of Critical Care Medicine Task Force 2004-2005. Crit Care Med 2007 Feb;35(2):605-22. [339 references] PubMed

## GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT



## SCOPE

### DISEASE/CONDITION(S)

Diseases/conditions requiring hospitalization in the intensive care unit (ICU)

### GUIDELINE CATEGORY

Management

### CLINICAL SPECIALTY

Critical Care
Family Practice
Nursing
Pediatrics

### INTENDED USERS

Advanced Practice Nurses
Nurses
Occupational Therapists
Physical Therapists
Physician Assistants
Physicians
Social Workers

### GUIDELINE OBJECTIVE(S)

To define evidence-based best practices for support of families in the delivery of patient-centered care in the intensive care unit (ICU)

### TARGET POPULATION

Adult, pediatric, and neonatal patients in the intensive care unit (ICU)

### INTERVENTIONS AND PRACTICES CONSIDERED

1. Implement shared decision-making model
2. Train staff to provide consistent and regular updates to families
3. Provide family support and education
4. Communicate with multiprofessional team (e.g., staff routine care conferences and debriefing, as needed)
5. Match provider's culture to patient's when available and provide culturally appropriate care
6. Incorporate spiritual and religious needs of patients, as needed
7. Provide flexible visitation schedule (including sibling and pet visits when appropriate)
8. Incorporate positive environmental features in intensive care units (ICUs)
9. Offer families the chance to participate in rounds
10. Allow family members to be present during cardiopulmonary resuscitation
11. Provide referral to hospice and bereavement support, as appropriate
12. Permit informal refusal of information when culturally indicated

### MAJOR OUTCOMES CONSIDERED

- Communication between providers and family
- Family stress levels

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

## DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

These guidelines were developed following an extensive literature review. The search was conducted through the Cochrane library, Cinahl, and MedLine for articles published between 1980 and 2003 related to the entirety of the topic of family-centered care. Additional searches were conducted using keywords associated with the following listed subheadings (decision making, family coping, staff stress related to family interactions, cultural support of the family, spiritual/religious support, family visitation, family environment of care, family presence on rounds, family presence at resuscitation, palliative care). For the topics of family visitation, family environment of care, family presence on rounds, and family witnessed resuscitation, the search years were narrowed due to a clear shift in focus and philosophy in the late 1990s. Articles published in 2004 and 2005 were added after the initial search. The review encompassed adult, pediatric, and neonatal literature.

Search results were loaded by subheading to a task force e-room of the Society of Critical Care Medicine. Authors were assigned a subheading and instructed to retain for further analysis any articles containing metrics (including survey research) or notable publications of consensus.

## NUMBER OF SOURCE DOCUMENTS

Not stated

## METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

## RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

| Grade of Recommendation | Level of Evidence | Therapy/Prevention, Etiology/Harm | Prognosis | Diagnosis |
|---|---|---|---|---|
| A | 1a | SR (with homogeneity[a]) of RCTs | SR (with homogeneity) of inception cohort studies, or a CPG validated on a test set | SR (with homogeneity) of level 1 diagnostic studies, or a CPG validated on a test set |
| | 1b | Individual RCT (with narrow confidence interval) | Individual inception cohort study with $\geq$ 80% follow-up | Independent blind comparison of an appropriate spectrum of consecutive patients, all of whom have undergone both the diagnostic test and |

| Grade of Recommendation | Level of Evidence | Therapy/Prevention, Etiology/Harm | Prognosis | Diagnosis |
|---|---|---|---|---|
| | | | | the reference standard |
| | 1c | All or none[c] | All or none case series[d] | Absolute SpPins and SnNouts |
| B | 2a | SR (with homogeneity) of cohort studies | SR (with homogeneity) of either retrospective cohort studies or untreated control groups in RCTs | SR (with homogeneity) of level $\geq$ 2 diagnostic studies |
| | 2b | Individual cohort study (including low-quality RCTs; e.g., < 80% follow-up) | Retrospective cohort study or follow-up of untreated control patients in an RCT, or CPG not validated in a test set | Any of the following:<br>1. Independent blind or objective comparison<br>2. Study performed in a set of nonconsecutive patients, or confined to a narrow spectrum of study individuals (or both) all of whom have undergone both the diagnostic test and the reference standard<br>3. A diagnostic CPG not validated in a test set |
| | 2c | "Outcomes" research | "Outcomes" research | |
| | 3a | SR (with homogeneity) of case-control studies | | |
| | 3b | Individual case-control study | | Independent blind comparison of an appropriate spectrum, but the reference |

| Grade of Recommendation | Level of Evidence | Therapy/Prevention, Etiology/Harm | Prognosis | Diagnosis |
|---|---|---|---|---|
| | | | | standard was not applied to all study patients |
| C | 4 | Case-series (and poor-quality cohort and case-control studies[e]) | Case-series (and poor-quality prognostic cohort studies[f]) | Any of the following:<br>• Reference standard was unobjective, unblinded, or not<br>• Independent<br>• Positive and negative tests were verified using separate reference standards<br>• Study was performed in an inappropriate spectrum of patients |
| D | 5 | Expert opinion without explicit critical appraisal, or based on physiology, bench research, or "first principles" | Expert opinion without explicit critical appraisal, or based on physiology, bench research, or "first principles" | Expert opinion without explicit critical appraisal, or based on physiology, bench research, or "first principles" |

SR, systematic review; RCT, randomized controlled trial; CPG, Clinical Prediction Guide; SpPins, diagnostic finding whose *s*pecificity is so high that a *p*ositive result rules *in* the diagnosis; SnNout, diagnostic finding whose *s*ensitivity is so high that a *n*egative result rules *out* the diagnosis.

[a]By homogeneity we mean a systematic review that is free of worrisome variations (heterogeneity) in the directions and degrees of results between individual studies. Not all systematic reviews with statistically significant heterogeneity need be worrisome, and not all worrisome heterogeneity need be statistically significant. Studies displaying a worrisome heterogeneity should be tagged with a "-" at the end of their designated level.

[c]Met when all patients died before the prescription became available, but some now survive it, or when some patients died before the prescription became available, but none now die on its.

[d]Met when there are no reports of anyone with this condition ever avoiding (all) or suffering from (none) a particular outcome (such as death).

[e]By poor-quality cohort study we mean one that failed to clearly define comparison groups and/or failed to measure exposures and outcomes in the same (preferably blinded), objective way in both exposed and nonexposed individuals and/or failed to identify or appropriately control known confounders and/or failed to carry out a sufficiently long and complete follow-up of patients. By poor-quality case-control study we mean one that failed to clearly define comparison groups and/or failed to measure exposures and outcomes in the same blinded, objective way in both cases and controls and/or failed to identify or appropriately control known confounders.

[f]By poor-quality prognostic cohort study we mean one in which sampling was biased in favor of patients who already had the target outcome, or the measurement of outcomes was accomplished in < 80% of study patients, or outcomes were determined in an unblinded, nonobjective way, or there was no correction for confounding factors.

## METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

## DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Cochrane methodology was used to evaluate each article's level of evidence and to grade the recommendations (see the "Rating Scheme for the Strength of the Evidence" and the "Rating Scheme for the Strength of the Recommendations" fields).

## METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

## DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The topic was divided into subheadings: decision making, family coping, staff stress related to family interactions, cultural support, spiritual/religious support, family visitation, family presence on rounds, family presence at resuscitation, family environment of care, and palliative care. Each section was led by one task force member. Each section draft was reviewed by the group and debated until consensus was achieved.

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Refer to the "Rating Scheme for the Strength of the Evidence" field for the grades of recommendation (A-D).

### COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

### METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

### DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The draft document was reviewed by a committee of the Board of Regents of the American College of Critical Care Medicine (ACCM). After steering committee approval, the draft was approved by the Society of Critical Care Medicine (SCCM) Council and was again subjected to peer review by Critical Care Medicine.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

The grades of recommendations (A-D) and levels of evidence (1a-1c, 2a-2c, 3a-3b, 4, 5) are defined at the end of the "Major Recommendations" field.

**Decision Making**

**Recommendation 1**: Decision making in the intensive care unit (ICU) is based on a partnership between the patient, his or her appointed surrogate, and the multiprofessional team. *Grade of Recommendation: B*

**Recommendation 2**: Practitioners fully disclose the patient's current status and prognosis to designated surrogates and clearly explain all reasonable management options. *Grade of Recommendation: B* (see recommendations 3 and 4 in the Cultural Support of the Family section)

**Recommendation 3**: ICU caregivers strive to understand the level of life-sustaining therapies desired by patients, either directly from those patients or via their surrogates. *Grade of Recommendation: D*

**Recommendation 4**: Family meetings with the multiprofessional team begin within 24–48 hrs after ICU admission and are repeated as dictated by the condition of the patient with input from all pertinent members of the multiprofessional team. *Grade of Recommendation: B* (see also Staff Stress Related to Family Interactions section)

**Recommendation 5**: ICU caregivers receive training in communication, conflict management, and meeting facilitation skills. *Grade of Recommendation: C*

## Family Coping

**Recommendation 1**: ICU staff receive training in how to assess family needs and family members' stress and anxiety levels. *Grade of Recommendation: C*

**Recommendation 2**: Nursing and physician staff assigned to each patient are as consistent as possible. Family members receive regular updates in language they can understand, but the number of health professionals who provide information is kept to a minimum. *Grade of Recommendation: C*

**Recommendation 3**: Families are encouraged to provide as much care as the patient's condition will allow and they are comfortable providing. *Grade of Recommendation: D*

**Recommendation 4**: Family members are provided with ample information in a variety of formats on emotional needs in the ICU and methods appropriate to comfort and assist in care. *Grade of Recommendation: C*

**Recommendation 5**: Family support is provided by the multiprofessional team, including social workers, clergy, nursing, medicine, and parent support groups. *Grade of Recommendation: C*

## Staff Stress Related to Family Interactions

**Recommendation 1**: The multiprofessional team is kept informed of treatment goals so that the messages given to the family are consistent, thereby reducing friction between team members and between the team and family. *Grade of Recommendation: C*

**Recommendation 2**: A mechanism is created whereby all staff members may request a debriefing to voice concerns with the treatment plan, decompress, vent feelings, or grieve. *Grade of Recommendation: C*

## Cultural Support of the Family

**Recommendation 1**: On request or when conflict arises due to cultural differences in values, when there is a choice of providers, the provider's culture is matched to the patient's. *Grade of Recommendation: C*

**Recommendation 2**: Healthcare professionals receive education to provide culturally competent care. *Grade of Recommendation: C*

**Recommendation 3**: The patient's desire to be told the truth about his or her clinical situation is determined by a routine assessment. *Grade of Recommendation: D*

**Recommendation 4**: For patients who are actively engaged in decision making about their care, their desire for truth takes precedence over that of their family when there is a conflict. *Grade of Recommendation: D*

**Recommendation 5**: When requesting assent for procedures, cultural norms are considered and respected whenever possible. *Grade of Recommendation: D*

**Recommendation 6**: If a patient makes an "informed refusal" of information, the request is respected. Subsequent information about the patient's illness and its prognosis is delivered in a culturally relevant and appropriate manner as indicated by the patient. The outcome of such discussions is documented in the patient's medical record. *Grade of Recommendation: D*

**Spiritual and Religious Support**

**Recommendation 1**: Spiritual needs of the patient are assessed by the healthcare team, and findings that affect health and healing incorporated into the plan of care. *Grade of Recommendation: C*

**Recommendation 2**: Physicians will review reports of ancillary team members such as chaplains, social workers, and nurses to integrate their perspectives into patient care. Chaplains and social workers are trained to explore spiritual issues and can provide intensivists with valuable insights into the patient's condition. *Grade of Recommendation: D*

**Recommendation 3**: Nurses and doctors receive training in awareness of spiritual and religious issues so that they may properly assess patients and make use of findings in the plan of care written by social workers and chaplains. *Grade of Recommendation: C*

**Recommendation 4**: If a patient requests that a healthcare provider pray with him or her, and the healthcare worker agrees to and feels comfortable with it, the request is honored and considered to be part of the spectrum of holistic intensive care. *Grade of Recommendation: D*

**Family Visitation**

**Recommendation 1**: Open visitation in the adult intensive care environment allows flexibility for patients and families and is determined on a case-by-case basis. *Grade of Recommendation: B*

**Recommendation 2**: The patient, family, and nurse determine the visitation schedule collectively; the schedule takes into account the best interest of the patient. *Grade of Recommendation: C*

**Recommendation 3**: Visitation in the pediatric intensive care unit (PICU) and neonatal intensive care unit (NICU) is open to parents and guardians 24 hrs a day. *Grade of Recommendation: C*

**Recommendation 4**: After participation in a previsit education process, visitation by siblings in the PICU and NICU is allowed with parental approval. *Grade of Recommendation: C*

**Recommendation 5**: Caution is taken with sibling visits to immunocompromised infants; with physician approval, sibling visits should be considered. *Grade of Recommendation: D*

**Recommendation 6**: Pets that are clean and properly immunized are not restricted from visiting the ICU. Guidelines are created to provide animal-assisted therapy and animal-assisted activities for patients. *Grade of Recommendation: B*

**Family Environment of Care**

**Recommendation 1**: Improve patient confidentiality, privacy, and social support by building ICUs with single-bed rooms that include space for family. *Grade of Recommendation: B*

**Recommendation 2**: Develop signs and way-finding systems to reduce stress on patients, families, and visitors. *Grade of Recommendation: B*

**Recommendation 3**: Replicate patient research regarding the effect of furniture arrangement, natural lighting, access to nature, positive distractions (music, laughter, art), and reduced noise levels on the biopsychosocial health of family members visiting in the ICU. *Grade of Recommendation: D*

**Family Presence on Rounds**

**Recommendation 1**: Parents or guardians of children in the ICU are given the opportunity to participate in rounds. *Grade of Recommendation: B* (randomized controlled trial was done on general medical patients and not ICU patients)

**Recommendation 2**: Whenever possible, adult patients or surrogate decision makers are given the opportunity to participate in rounds. *Grade of Recommendation: B*

**Recommendation 3**: Pediatric patients in the ICU are given the opportunity to participate in rounds with parental permission. *Grade of Recommendation: D*

**Recommendation 4**: Patients and family members who participate in rounds are given the opportunity to ask questions to clarify information discussed on rounds. *Grade of Recommendation: D*

**Family Presence at Resuscitation (FPR)**

**Recommendation 1**: Institutions develop a structured process to allow the presence of family members during cardiopulmonary resuscitation of their loved one that includes a staff debriefing. *Grade of Recommendation: C*

**Recommendation 2**: The resuscitation team includes a member designated and trained to support the family during family witnessed resuscitation. *Grade of Recommendation: D*

**Recommendation 3**: Resuscitation team and ICU training includes information regarding the process and rationale for family presence at resuscitation (FPR). *Grade of Recommendation: D*

**Palliative Care**

**Recommendation 1**: Assessments are made of the family's understanding of the illness and its consequences, symptoms, side effects, functional impairment, and treatments and of the family's ability to cope with the illness and its consequences. Family education should be based on the assessment findings. *Grade of Recommendation: D*

**Recommendation 2**: The family is educated about the signs and symptoms of approaching death in a developmentally and culturally appropriate manner. *Grade of Recommendation: D*

**Recommendation 3**: As appropriate, the family is informed about and offered referral to hospice palliative care and other community-based healthcare resources. *Grade of Recommendation: D*

**Recommendation 4**: Bereavement services and follow-up care are made available to the family after the death of a patient. *Grade of Recommendation: D*

**Recommendation 5**: Training in the elements of palliative care is a formal component of critical care education. *Grade of Recommendation: C*

**Definitions**:

| Grade of Recommendation | Level of Evidence | Therapy/Prevention, Etiology/Harm | Prognosis | Diagnosis |
|---|---|---|---|---|
| A | 1a | SR (with homogeneity[a]) of RCTs | SR (with homogeneity) of inception cohort studies, or a CPG validated on a test set | SR (with homogeneity) of level 1 diagnostic studies, or a CPG validated on a test set |
| | 1b | Individual RCT (with narrow confidence interval) | Individual inception cohort study with $\geq$ 80% follow-up | Independent blind comparison of an appropriate spectrum of consecutive patients, all of whom have undergone both the diagnostic test and the reference standard |
| | 1c | All or none[c] | All or none case series[d] | Absolute SpPins and SnNouts |
| B | 2a | SR (with homogeneity) of cohort studies | SR (with homogeneity) of either | SR (with homogeneity) of level $\geq$ 2 diagnostic studies |

| Grade of Recommendation | Level of Evidence | Therapy/Prevention, Etiology/Harm | Prognosis | Diagnosis |
|---|---|---|---|---|
| | | | retrospective cohort studies or untreated control groups in RCTs | |
| | 2b | Individual cohort study (including low-quality RCTs; e.g., < 80% follow-up) | Retrospective cohort study or follow-up of untreated control patients in an RCT, or CPG not validated in a test set | Any of the following:<br>1. Independent blind or objective comparison<br>2. Study performed in a set of nonconsecutive patients, or confined to a narrow spectrum of study individuals (or both) all of whom have undergone both the diagnostic test and the reference standard<br>3. A diagnostic CPG not validated in a test set |
| | 2c | "Outcomes" research | "Outcomes" research | |
| | 3a | SR (with homogeneity) of case-control studies | | |
| | 3b | Individual case-control study | | Independent blind comparison of an appropriate spectrum, but the reference standard was not applied to all study patients |
| C | 4 | Case-series (and poor-quality cohort and case-control studies[e]) | Case-series (and poor-quality | Any of the following:<br>• Reference |

| Grade of Recommendation | Level of Evidence | Therapy/Prevention, Etiology/Harm | Prognosis | Diagnosis |
|---|---|---|---|---|
| | | | prognostic cohort studies[f]) | standard was unobjective, unblinded, or not<br>• Independent<br>• Positive and negative tests were verified using separate reference standards<br>• Study was performed in an inappropriate spectrum of patients |
| D | 5 | Expert opinion without explicit critical appraisal, or based on physiology, bench research, or "first principles" | Expert opinion without explicit critical appraisal, or based on physiology, bench research, or "first principles" | Expert opinion without explicit critical appraisal, or based on physiology, bench research, or "first principles" |

SR, systematic review; RCT, randomized controlled trial; CPG, Clinical Prediction Guide; SpPins, diagnostic finding whose *s*pecificity is so high that a *p*ositive result rules *in* the diagnosis; SnNout, diagnostic finding whose *s*ensitivity is so high that a *n*egative result rules *out* the diagnosis.

[a]By homogeneity we mean a systematic review that is free of worrisome variations (heterogeneity) in the directions and degrees of results between individual studies. Not all systematic reviews with statistically significant heterogeneity need be worrisome, and not all worrisome heterogeneity need be statistically significant. Studies displaying a worrisome heterogeneity should be tagged with a "-" at the end of their designated level.

[c]Met when all patients died before the prescription became available, but some now survive it, or when some patients died before the prescription became available, but none now die on its.

[d]Met when there are no reports of anyone with this condition ever avoiding (all) or suffering from (none) a particular outcome (such as death).

[e]By poor-quality cohort study we mean one that failed to clearly define comparison groups and/or failed to measure exposures and outcomes in the same (preferably blinded), objective way in both exposed and nonexposed individuals and/or failed to identify or appropriately control known confounders and/or failed to carry out a sufficiently long and complete follow-up of patients. By poor-quality case-control study we mean one that failed to clearly define comparison groups and/or failed to measure exposures and outcomes in the same blinded, objective way in both cases and controls and/or failed to identify or appropriately control known confounders.

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### CLINICAL ALGORITHM(S)

None provided

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is specifically stated for each recommendation. Where evidence did not exist or was of a low level, consensus was derived from expert opinion.

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

- Reduce adverse psychological outcomes in family members
- Improve family satisfaction
- Improve attainment of family needs
- Decrease staff stress

### POTENTIAL HARMS

Cons of family presence on rounds include perception of not having enough time to answer parental questions during rounds, confidentiality, and crowding.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

- These guidelines were developed by a task force assembled by the American College of Critical Care Medicine (ACCM) of the Society of Critical Care Medicine (SCCM) and have been reviewed by the Society's Council. These

guidelines reflect the official opinion of the SCCM and should not be construed to reflect the views of the specialty boards or any other professional medical organization.
- Unless otherwise noted, recommendations apply equally to care in adult, pediatric, and neonatal environments.
- For the section on palliative care, the task force reviewed the *Clinical Practice Guidelines for Quality Care*, released in 2004 by the National Consensus Project for Quality Palliative Care. Although the National Consensus Project guidelines pertain to both patient and family care, they are also applicable to family support. The SCCM endorses the recommendations of the National Consensus Project in their entirety.
- For the purposes of this document, the definition of family published by the National Consensus Project for Quality Palliative Care is adopted: "Family is defined by the patient or in the case of minors or those without decision making capacity by their surrogates. In this context the family may be related or unrelated to the patient. They are individuals who provide support and with whom the patient has a significant relationship."

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

End of Life Care
Getting Better
Living with Illness

### IOM DOMAIN

Effectiveness
Patient-centeredness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Davidson JE, Powers K, Hedayat KM, Tieszen M, Kon AA, Shepard E, Spuhler V, Todres ID, Levy M, Barr J, Ghandi R, Hirsch G, Armstrong D, American College of Critical Care Medicine Task Force 2004-2005, Society. Clinical practice guidelines for support of the family in the patient-centered intensive care unit: American College of Critical Care Medicine Task Force 2004-2005. Crit Care Med 2007 Feb;35(2):605-22. [339 references] PubMed

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

## DATE RELEASED

2007 Feb

## GUIDELINE DEVELOPER(S)

Society of Critical Care Medicine - Professional Association

## SOURCE(S) OF FUNDING

Society of Critical Care Medicine (SCCM)

## GUIDELINE COMMITTEE

Society of Critical Care Medicine Task Force

## COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

*Task Force Members*: Judy E. Davidson, RN, FCCM (*Chairperson*); Karen Powers, MD; Kamyar M. Hedayat, MD; Mark Tieszen, MD, FCCM; Alexander A. Kon, MD, FCCM; Eric Shepard, MD, FCCM; Vicki Spuhler, RN, MS, CCRN; I. David Todres, MD, FCCM; Mitchell Levy, MD, FCCM; Juliana Barr, MD, FCCM; Raj Ghandi, MD, FCCM; Gregory Hirsch, MD; Deborah Armstrong, PharmD, FCCM

## FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Dr. Levy has received honoraria and research support from Eli Lilly and Edwards Lifesciences. He also received research support from Philips Medical Systems, Chiron, and Biosite. The remaining authors have not disclosed any potential conflicts of interest.

## GUIDELINE STATUS

This is the current release of the guideline.

## GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Society of Critical Care Medicine (SCCM) Web site.

Print copies: Available from the Society of Critical Care Medicine, 701 Lee Street, Suite 200, Des Plaines, IL 60016; Phone: (847) 827-6869; Fax: (847) 827-6886; on-line through the SCCM Bookstore.

## AVAILABILITY OF COMPANION DOCUMENTS

None available

## PATIENT RESOURCES

None available

## NGC STATUS

This NGC summary was completed by ECRI Institute on June 8, 2007. The information was verified by the guideline developer on June 29, 2007.

## COPYRIGHT STATEMENT



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